IMPROVE soil health with cover crops

HORTGRO
Growing Fruit IQ

Cover crops support soil health by increasing soil carbon – organic matter – which stimulates microbial activity and improves soil structure. By **Anna Mouton**

The impact of cover crops on soil health was discussed at a workshop facilitated by the World Wide Fund for Nature (WWF) held at Oak Valley in Grabouw in August.

Ivan Jansen van Rensburg from Barenbrug described eight soil-health benefits of cover crops: sequestering carbon, supporting microbes, suppressing diseases, fixing nitrogen, suppressing weeds, preventing erosion, building structure, and improving aeration and infiltration.

Different cover crops have different strengths, so diversity is important. For example, radish roots muscle into the soil, breaking up compaction, enabling water movement. But Jansen van Rensburg pointed out that the finer roots of cereals are as useful as the large roots of radishes.

"A diversity of roots creates micro and macro pores in the soil for water and air," he said. "Deep-rooted cereals can also put carbon deeper into the soil where it is more stable than carbon located at the surface."

Legumes offer the bonus of nitrogen fixation – their dry matter typically contains 1.5 - 4.0% nitrogen. "This is relevant as the price of nitrogen fertilisers has skyrocketed recently," said Jansen van Rensburg.

However, he cautions that the amount of nitrogen supplied by legumes will depend on the variety and species of cover crop, as well as the amount of biomass it produces. "Growing conditions and how happy the plant is, as well as how successful the inoculation of rhizobium on the roots has been, will have a big influence on the amount of nitrogen fixed."

Cover-crop selection

The number of available cover crops is continually increasing, as breeders develop improved varieties. "It's easy to be confused by all the options," conceded Jansen van Rensburg.

He recommends that growers start by identifying the goal of the cover crop, then consider rainfall, irrigation, soil type, site-specific challenges, equipment, and their budget. When choosing legumes, for instance, vetch and medicks do well on loam and clay soils, but serradella and lupines are a better option on sandy soils.

Equipment can be a challenge as fruit producers are not geared for growing field crops. "But we're seeing more farmers investing in no-till planters and equipment for terminating cover crops," said Jansen van Rensburg, "and that's going to help a lot."

Although diversity is desirable, Jansen van Rensburg warns that mixtures with too many varieties can be difficult to establish and manage. Planting equipment may not cope with the seed size and seeding depth variability. Once seeds germinate, the different cover crops might not be compatible. Termination can also become a problem when some cover crops are already in seed while others are still actively growing.

"What I prefer is to rather make smaller mixtures," said Jansen van Rensburg, "then you know it's going to be easier to terminate, the species are compatible, and your equipment can handle it."

Cover-crop rotation is an alternative to very diverse mixtures and can help when the aim is to eradicate stubborn weeds like couch or bindweed. Grass-selective herbicides can be applied during a broadleaf rotation and vice versa. Herbicide use will become less and less over time, as new weeds are outcompeted while the established weeds are killed off.

"Keep in mind that upping your seeding rates generally suppresses weeds better," added Jansen van Rensburg, "but you might reduce the amount of biomass because of competition. You must decide what your main objective is – to produce biomass or to suppress weeds, a balance can also be achieved."

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